These degree programme and examination regulations have been worded carefully to be up to date; however, errors cannot be completely excluded. The official German text available at the Examinations Office is the version that is legally binding.

Degree Programme and Examination Regulations for the Bachelor’s Degree and Master’s Degree Programmes in Molecular Science at the Faculty of Sciences at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) – FPO BAMA Molecular Science – Dated 6 August 2020

Based on Section 13 (1)(2), Section 43 (5)(2), Section 58 (1) and Section 61 (2)(1) of the Bavarian Higher Education Act (Bayerisches Hochschulgesetz, BayHSchG), FAU enacts the following degree programme and examination regulations:

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Part I: General Provisions

Section 40 Scope
The degree programme and examination regulations for the Bachelor’s degree programme in Molecular Science (BSc Molecular Science) and the consecutive Master’s
degree programme in Molecular Science (MSc Molecular Science) supplement the current version of the General Degree Programme and Examination Regulations for Bachelor’s and Master’s Degree Programmes at the Faculty of Sciences at FAU (ABMPO/NatFak).

Section 41 Bachelor’s Degree Programme, Related Degrees
(1) ¹The Bachelor’s degree programme in Molecular Science consists of modules worth 180 ECTS credits distributed over six semesters. ²This includes the period for working on the Bachelor’s thesis.

(2) The following Bachelor’s degree programmes are considered subject-related degree programmes as defined in Section 28 (1) (2)(2) ABMPO/NatFak: Bachelor’s degree programmes in Chemistry and Molecular Science or degree programmes with predominantly chemistry-related content accounting for at least 70 % of the total ECTS credits acquired.

Section 42 Master’s Degree Programme, Teaching and Examination Language, Related Degrees
(1) ¹The Master’s degree programme in Molecular Science builds on the contents of the Bachelor’s degree programme in Molecular Science. ²It consists of modules worth 120 ECTS credits including the Master’s thesis, distributed over four semesters.

(2) Section 4 (4) ABMPO/NatFak applies with the proviso that the teaching and examination language is English and that individual teaching units and examinations may be held in German; otherwise, Section 4 (4) ABMPO/NatFak shall remain unaffected.

(3) Master’s degree programmes in which content from the core disciplines of fundamental molecular science accounts for at least 80 % of the total number of ECTS credits obtained in the degree shall be considered subject-related degree programmes as defined in Section 35 (2)(2) ABMPO/NatFak.

Section 43 Examinations Committee
¹The joint Examinations Committee for the Bachelor’s degree programmes in Chemistry and Molecular Science and the Master’s degree programmes in Chemistry and Molecular Science shall consist of six members. ²The chairperson, their deputy and the further members of the Examinations Committee shall be professors at the Faculty of Sciences and appointed by the Faculty Council of the Faculty of Sciences based on the recommendation of the Department of Chemistry and Pharmacy.

Part II: Special Provisions

1. Bachelor’s Examination

Section 44 Structure of the Bachelor’s Degree Programme
(1) ¹The Bachelor’s degree programme in Molecular Science consists of a foundation phase and an orientation phase. ²All modules in the foundation phase are compulsory. ³The orientation phase consists of compulsory modules, compulsory elective modules and an elective module in ‘key qualifications’. ⁴Details are set forth hereinafter and in Appendix 1.
(2) Modules no. 1 to 24, 28 and 29 in Appendix 1 are compulsory.

(3) Modules no. 25 to 26 in Appendix 1 are compulsory elective modules. Further details are stipulated in Section 46.

(4) The module in key qualifications (no. 27 in Appendix 1) is an elective module.

**Section 45 Grundlagen- und Orientierungsprüfung (GOP)**
In order to pass the Grundlagen- und Orientierungsprüfung (GOP), students must acquire at least 30 ECTS credits from modules nos. 1 and 4 - 10 in Appendix 1 no later than the end of the third subject semester.

**Section 46 Compulsory Elective Modules**

(1) One module package referred to as 'Orientation module molecular life science' or 'Orientation module molecular nanoscience', both of which account for 30 ECTS credits, can be chosen as a compulsory elective module as defined in Section 44 (3). The contents of the relevant module package are listed in a module catalogue, which is announced in accordance with local practice at the latest one week before the semester starts. The module catalogue can be altered by the Examinations Committee with effect from the next semester. The module catalogue shall be announced in accordance with local practice at the latest one week before the semester begins.

(2) The learning outcome of the previously mentioned module packages is to allow students to specialise in selected disciplines of fundamental molecular chemistry in life science or nanoscience. The aim of the 'Orientation module molecular life science' module package is to transfer knowledge in the field of medical chemistry and molecular disciplines of biology as well as chemical modelling. The 'Orientation module molecular nanoscience' provides insights into chemical reaction mechanisms, molecule and particle synthesis, as well as microscopic and spectroscopic analysis and potential applications of nanoscale systems. In addition, students can acquire specific practical laboratory skills in both module packages. The element of choice gives students the opportunity to tailor their profile in view of their future career.

(3) Possible examination achievements in the compulsory elective modules are set out in Section 6 (3) and (4) ABMPO/NatFak:
1. Written examination (60 - 90 min),
2. Oral examination (20 - 45 min),
3. Electronic examination (EE, e-examination 30 - 60 min),
4. Practical achievement (PA, series of reports 30 - 50 pages plus documentation of raw data), or
5. Seminar achievement (SA, presentation 20 - 30 min or report 5 - 10 pages).

In justified exceptional circumstances pursuant to Section 6 (2)(3) ABMPO/NatFak, combinations of the options stated in sentence 1 may also be possible. In particular, it is possible to combine a written or oral examination with achievements as set forth in Section 6 (4) ABMPO/NatFak. Further details are stipulated in the module handbook.

(4) Modules generally amount to 5 ECTS credits and usually consist of lectures (2 SWS) and seminars (2 SWS) or tutorials (2 SWS) or laboratory courses (8 SWS) and seminar (1 SWS). Any exceptions are detailed in the module handbook.
Section 47 Bachelor's Thesis

(1) Students are required to have achieved at least 100 ECTS credits in order to be allocated a subject for the Bachelor's thesis.

(2) The Bachelor's thesis module shall be worth a total of 10 ECTS credits. The topic of the Bachelor's thesis ought to be such that it can be completed within a period of eight weeks, with two weeks generally allocated to the writing phase. The deadline for completing the thesis may be extended by two weeks on the student's request and with the supervisor's approval.

(3) As a rule, the Bachelor's thesis shall be completed in the Department of Chemistry and Pharmacy or in the Department of Biology.

(4) All full-time university lecturers and lecturers who have completed a habilitation who work at the Department of Chemistry and Pharmacy or who are involved in teaching the Bachelor's degree programme in Molecular Science at the Department of Biology shall be entitled to allocate subjects for Bachelor's theses (supervisors). The Examinations Committee shall have the right to grant exceptions.

(5) At least one of the two examiners pursuant to Section 31 (7) ABMPO/NatFak must belong to the Department of Chemistry and Pharmacy.

2. Master's Examination

Section 48 Admissions Committee for the Master's Degree Programme

The admissions committee for the Master's degree programme in Molecular Science consists of a professor as the chairperson and two further university lecturers. The members are proposed by the Department of Chemistry and Pharmacy and appointed by the Faculty Council of the Faculty of Sciences.

Section 49 Qualification for a Master's Degree, Certificates and Admission Requirements

(1) A subject-specific degree as defined in Section 34 (1)(1) ABMPO/NatFak is a Bachelor's degree or a Diplom degree in the subject Chemistry or Molecular Science. Bachelor's degrees shall be recognised as subject-related degrees as defined in Section 34 (1)(1) ABMPO/NatFak if content from the disciplines of molecular science accounts for at least 80 % of the total ECTS credits obtained, and at least 25 % of this content is based on sound laboratory skills gained through the student's own independent efforts. Applicants with a subject-related degree as defined in sentence 2 shall only be admitted to the Master's degree programme after passing an oral admission examination. The minimum number of ECTS credits required in the event of a student not having yet completed their Bachelor's degree pursuant to Section 34 (3) ABMPO/NatFak is 135 ECTS credits.

(2) The admissions committee shall also consider applicants to be suitable for admission to the degree programme pursuant to (5)(3) ABMPO/NatFak if the subject-specific or subject-related qualification pursuant to (1) sentence 1 or 2 has significant differences according to Section 34 (2) ABMPO/NatFak but the applicant has successfully completed the Transition Studies Chemistry programme at the Faculty of Sciences at FAU pursuant to the currently valid version of StuPO/STSC.
The application for admission to the qualification assessment process according to (2)(2)(3) of the Appendix ABMPO/NatFak shall include:

1. Proof of English language skills at CEFR (Common European Framework of Reference for Languages) level B2 – Vantage or upper intermediate and
2. In the case of (2), evidence of successfully completing the Transition Studies Chemistry programme at the Faculty of Sciences at FAU pursuant to the currently valid version of the StuPO/STSC
3. A statement about the choice of specialisation.

Evidence pursuant to sentence 1 (1) is not required if the applicant’s university entrance qualification or undergraduate degree was obtained in English.

Applicants who cannot be admitted directly to the degree programme as a result of the preliminary examination and whose overall grade in the degree programme pursuant to (1)(1) or average grade of achievements to date comes to between 2.6 and 2.9 shall be invited to an oral admission examination. Pursuant to (5)(5) of the Appendix ABMPO/NatFak, applicants with a subject-related degree can only be accepted onto the Master’s degree programme after passing an oral admission examination pursuant to (5)(6) et seq. of the Appendix ABMPO/NatFak in conjunction with (3). The overall grade of the degree pursuant to (1)(2) must be 2.9 or better. Furthermore, (4)(3) of the Appendix ABMPO/NatFak shall apply.

The oral admission examination pursuant to (5)(6) et seq. of the Appendix ABMPO/NatFak in conjunction with (4) shall be conducted by two university lecturers from the Department of Chemistry and Pharmacy appointed by the admissions committee.

Applicants shall be assessed on the basis of their specialist and methodological skills in the fundamentals of chemistry (80 %) as well as individually chosen specialisations in the area of chemistry/molecular science (20 %).

Section 50 Scope and Structure of the Master’s Degree Programme

(1) The Master’s degree programme in Molecular Science consists of compulsory, compulsory elective and elective modules. The distribution of the modules is stipulated in Appendix 2.

(2) The Molecular Science Master’s degree programme is offered in the following specialisations:
- Drug Discovery
- Molecular Nanoscience.

Applicants state their chosen specialisation in their application for admission to the Master’s degree programme. A change of specialisation is possible on request at a later date.

(3) Modules no 10 and 11 in Appendix 2 are compulsory (Master’s thesis and research module).

(4) Compulsory elective modules of the specialisations as well as compulsory elective module A and B (both in the laboratory) are the modules listed in nos. 1 - 6 of Appendix 2 with a total of 60 ECTS credits.

(5) Elective modules (nos. 7 - 9) can be chosen on subject-related or non-subject related topics and shall account for a total of 15 ECTS credits pursuant to Appendix 2.
To complete the Master's degree, students must pass the module examinations including the Master's thesis module stipulated in Appendix 2, amounting to a total of 120 ECTS credits.

Section 51 Compulsory Elective Modules in Specialisations

(1) The compulsory elective modules of each specialisation in accordance with Section 50 (2) are listed in module catalogues that are updated each semester; Section 46 (1) sentences 2 and 3 shall apply accordingly. In the specialisations, students acquire skills in scientific methodology for applying research-oriented methods and for problem-solving strategies in the field of modern and interdisciplinary molecular science as well as the ability to carry out academic work independently. The learning outcome has a research focus, with students learning subject-specific methods of research and exploring their subject in more depth. The element of choice allows students to tailor their profile in view of their career plans.

(2) A total of three module packages with a total workload of 60 ECTS credits shall be chosen as compulsory elective modules as stipulated in Section 50 (4). Students initially choose a module package worth a total of 40 ECTS credits based on the specialisation, followed by two module packages (compulsory elective module A and B) from modern molecular and partially interdisciplinary research fields worth 10 ECTS credits each.

(3) The specialisations have the following subject-specific learning outcomes:

1. In the Drug Discovery specialisation, students are taught skills in active ingredient design on the basis of current findings from medical chemistry, molecular biology, biochemistry and genetics. Computer simulations of chemical processes open up new ways of understanding the principles of active ingredients.

2. In the Molecular Nanoscience specialisation, bottom-up concepts are pursued in order to optimise specific properties of nano-scale or molecular or low-dimension systems on the basis of the design of the molecule and to identify potential applications. Students gain skills in the fields of modern nanoanalytics, the synthesis of anorganic and organic molecular synthesis, structure-property relationships, and the targeted functionalisation and use of nanoscale objects in modern applications.

(4) The compulsory elective modules are listed in a module catalogue, which is announced in accordance with local practice at the latest one week before the semester begins. The module catalogue can be altered by the Examinations Committee with effect from the next semester. The module catalogue shall be announced in accordance with local practice at the latest one week before the semester begins.

(5) The type and scope of examinations are stipulated in Section 46 (3).

Section 52 Elective Modules

(1) Students shall choose three subject-related or non-subject related elective modules worth 5 ECTS credits each. When selecting non-subject related elective modules
according to sentence 1, students may choose from all modules offered as key qualifications at FAU, apart from those that have already been included as a course achievement in their Bachelor's degree programme. The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable (degree programme and) examination regulations and/or the module handbook.

(2) The subject-related elective modules are listed in a module catalogue, which is announced in accordance with local practice at the latest one week before the semester begins. The module catalogue can be altered by the Examinations Committee with effect from the next semester. The module catalogue shall be announced in accordance with local practice at the latest one week before the semester begins.

Section 53 Research Module
The research module is one of the compulsory modules in the Master's degree programme and aims to prepare students for the Master's thesis. It is split into an 8-week laboratory course on a current research topic (21 SWS), and accompanying main seminars (2 SWS) from one of the specialist disciplines of chemistry (inorganic chemistry, organic chemistry, physical chemistry or theoretical chemistry), medical chemistry, food chemistry or disciplines from the Department of Biology involved in teaching the degree programme. In exceptional cases, students may be permitted to complete the research module in alternative research areas (for example interdisciplinary topics). This must, however, be approved by the Examinations Committee and a potential supervisor from the Department of Chemistry and Pharmacy or the Department of Biology who is an authorised examiner. In particular, the research module can be completed during a stay abroad under the supervision of an external supervisor and an authorised examiner from the Department of Chemistry and Pharmacy or the Department of Biology who is responsible for grading the examination. The examination shall consist of a graded laboratory report of approximately 20 pages in length plus documentation of raw data.

Section 54 Master's Thesis
(1) Before commencing work on the Master's thesis, students must have successfully completed the compulsory elective modules and the research module, coming to a total of 75 ECTS credits.

(2) The Master's thesis is intended to show that the student is capable of dealing with a problem from the field of the Master's degree programme in Molecular Science independently and according to scientific methods within a set period, presenting the results in accordance with the standards of the field and using the correct language, and putting them in relation to current specialist literature.

(3) The Master's thesis shall focus either on fundamental research or on application-oriented research. It shall generally be written in English; the Examinations Committee shall decide whether to grant exceptions.

(4) 30 ECTS credits shall be awarded for the Master's thesis.

(5) Section 47 (4) and (5) shall apply accordingly.
Part III: Final Provisions

Section 55 Legal Validity

(1) These degree programme and examination regulations shall come into effect on the day after their publication. They shall apply to all students who start the Bachelor’s or Master’s degree programme in Molecular Science in the winter semester 2020/2021 or later. Notwithstanding sentence 2, the provision stipulated in Section 49 in conjunction with Section 34 and the Appendix ABMPO/NatFak shall apply for the first time to applications for admission to the Master’s degree programme in summer semester 2021; until then the provisions stipulated in the currently valid version of the degree programme and examination regulations for the Bachelor’s and Master’s degree programme Molecular Science at the Faculty of Sciences at FAU – FPOMol – dated 25 July 2013 in conjunction with the currently valid version of the general examination regulations for the Bachelor’s and Master’s degree programmes in Chemistry and Molecular Science at the Faculty of Sciences at FAU – ABMPOChemMol/NatFak – dated 25 July 2013 shall apply.

(2) Students who are already studying under the previous examination regulations for the Bachelor’s and Master’s degree programmes in Molecular Science at the Faculty of Sciences at FAU – FPOMol – in the version dated 25 July 2013 shall sit their examinations according to the previously valid examination regulations. The degree programme and examination regulations mentioned in sentence 1 shall become invalid as of 30 September 2024. Examinations pursuant to the degree programme and examination regulations stated in sentence 1 will be offered for the last time for the Bachelor’s degree programme in summer semester 2024 and for the Master’s degree programme in winter semester 2022/2023.
Appendix 1: Structure of the Bachelor's Degree Programme in Molecular Science (BSc)

Compulsory modules: green; compulsory elective modules: red; elective modules: blue

<table>
<thead>
<tr>
<th>No.</th>
<th>Module name</th>
<th>Teaching unit</th>
<th>SWS (semester hours)</th>
<th>ECTS credits</th>
<th>Workload per semester in ECTS credits</th>
<th>Type and scope of the examination</th>
<th>Grade factor</th>
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</thead>
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<td>L</td>
<td>T</td>
<td>P</td>
<td>S</td>
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Notes:
- L, T, P, S: Lecture, Teaching, Practical, Seminar
- EA: Written examination
- CA: Practical examination
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<th>No.</th>
<th>Module name</th>
<th>Teaching unit</th>
<th>SWS (semester hours)</th>
<th>ECTS credits</th>
<th>Workload per semester in ECTS credits</th>
<th>Type and scope of the examination</th>
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<td>10</td>
<td>10</td>
<td>Written thesis (approx. 35 pages)</td>
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Total SWS: 179/181
Total ECTS: 180

Key:
L = lecture
T = tutorial
S = seminar
Lab = laboratory course
SWS = semester hours
ECTS = credits from European Credit Transfer System
CA = course achievement
EA = examination achievement
PA = practical achievement pursuant to Section 6 (4) ABMPO/NatFak
SA = seminar achievement pursuant to Section 6 (4) ABMPO/NatFak
TA = tutorial achievement pursuant to Section 6 (4) ABMPO/NatFak

*Please note:* Students may choose to obtain the examination of the module B18 either by taking a 90 minute written examination or two partial examinations of 60 minutes each in the individual subject areas (biochemistry 1 and biochemistry 2).

1) Students can choose between the 'Molecular Life Science' and 'Molecular Nanoscience' orientation modules.

2) Modules can be selected from the range of modules in key qualifications offered at FAU. The type and scope of teaching units and examinations depend on the specific manner in which the respective module is taught and are regulated by the applicable (degree programme and) examination regulations and/or the module handbook.
Appendix 2: Structure of the Master's Degree Programme in Molecular Science (MSc)

Compulsory modules: green; compulsory elective modules: blue; elective modules: grey.

<table>
<thead>
<tr>
<th>Module name</th>
<th>Teaching unit</th>
<th>SWS (semester hours)</th>
<th>ECTS credits</th>
<th>Workload per semester in ECTS credits</th>
<th>Type and scope of the examinations</th>
<th>Grade factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L</td>
<td>T</td>
<td>P</td>
<td>S</td>
<td>1st sem.</td>
</tr>
<tr>
<td>1 Module package: ‘Drug Discovery’ 1)</td>
<td>see Section 51 (6)</td>
<td>12</td>
<td>15</td>
<td>10</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>2 Module package: ‘Molecular Nanoscience’ 1)</td>
<td>see Section 51 (6)</td>
<td>12</td>
<td>15</td>
<td>10</td>
<td>40</td>
<td>20</td>
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<tr>
<td>3 Compulsory elective module A 2)</td>
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<td>1</td>
<td>5</td>
<td>5</td>
<td>see Section 51 (5)</td>
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<tr>
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<td>see Section 51 (6)</td>
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<td>1</td>
<td>5</td>
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<td>see Section 51 (5)</td>
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<tr>
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<td>1</td>
<td>5</td>
<td>5</td>
<td>see Section 51 (5)</td>
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<tr>
<td>6 Compulsory elective module (laboratory) 2)</td>
<td>see Section 51 (6)</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>see Section 51 (5)</td>
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<td>7 Elective module 1 4)</td>
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<td>see Section 52 (2)</td>
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<td>8 Elective module 2 4)</td>
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<td>see Section 52 (2)</td>
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<td>9 Elective module 3 4)</td>
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<td>see Section 52 (2)</td>
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<tr>
<td>10 Research module</td>
<td>see Section 53</td>
<td>21</td>
<td>2</td>
<td>15</td>
<td>15</td>
<td>see Section 53 (5)</td>
</tr>
<tr>
<td>11 Master’s thesis</td>
<td>Master’s thesis</td>
<td>35</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>EA: written assignment approx. 20,000 words</td>
</tr>
</tbody>
</table>

Total (per semester) 18 85 15 120 30 30 30 30
Total SWS: 117
Total ECTS: 120

Key:
L = lecture
T = tutorial
Lab = laboratory course
S = seminar
SWS = semester hours
ECTS = credits from European Credit Transfer System
CA = course achievement
EA = examination achievement
PA = practical achievement pursuant to Section 6 (4) ABMPO/NatFak
SA = seminar achievement pursuant to Section 6 (4) ABMPO/NatFak
TA = tutorial achievement pursuant to Section 6 (4) ABMPO/NatFak

1) Students can choose between the ‘Drug Discovery’ and ‘Molecular Nanoscience’ specialisation modules.
2) The modules ‘compulsory elective module A’, ‘compulsory elective module B’, ‘compulsory elective module C’ and ‘compulsory elective module (laboratory)’ are thematically linked. The semesters in which they are taken may vary. See the module handbook for details.

3) ‘Compulsory elective module C’ can be replaced by a further ‘compulsory elective module (laboratory)’ of 7 SWS on request. See the module handbook for details.

4) According to the courses on offer, elective modules can be taken in either the first or the second subject semester.
Published according to the resolution of the University Senate on 22 July 2020 and the authorisation of Vice President Prof. Dr. Bärbel Kopp on 6 August 2020.

Erlangen, 6 August 2020

Prof. Dr. Bärbel Kopp
Vice President Education

These regulations were established on 6 August 2020 at the University of Erlangen-Nürnberg and displayed for public inspection at the University of Erlangen-Nürnberg on 6 August 2020. The date of publication is 6 August 2020.