## Master's Program Subject and Completion Requirements 2017

|  | nent of Bioinformatic Engineering  |  |  | School hour a week      |                             |                         |                             |  |                      |                      |
|--|--|--|--|-------------------------|-----------------------------|-------------------------|-----------------------------|--|----------------------|----------------------|
| ~ -  | A completion requirements item name and subject name   | Instructor   |  | 1st.Grade 2nd.Grade     |                             |                         |                             | Unit   |                      | Necessar             |
| Code   |  |  | Unit   | Spring<br>and<br>Summer | Fall and<br>Winter<br>Terms | Spring<br>and<br>Summer | Fall and<br>Winter<br>Terms | multiplication<br>method   | lower limit<br>units | lower limit<br>units |
|  |  |  |  |                         |                             |                         |                             |  |                      |                      |
|  |  |  |  | Terms                   | Terms                       | Terms                   | Terms                       | (1) (2)  |                      |                      |
|  | Total  |  |  |                         |                             |                         |                             | (1)+(2)  | 30                   |                      |
|  | (1) Core Subjects  |  |  | 1                       |                             |                         | <u> </u>                    | (1,1)+(1,2)  | 22                   |                      |
| 221725   | (1,1)Core Subjects (Required) Research on Bioinformatic Engineering Ia   | All Staff  | 2  | 6                       |                             |                         |                             | <u>L</u>   | 4                    |                      |
|  | Research on Bioinformatic Engineering Ib   | All Staff  | 2  | 0                       | 6                           |                         |                             |  |                      |                      |
| 331720   | (1,2)Core Subjects (Elective)  | All Stall  |  |                         | 0                           |                         | <u> </u>                    | Σ  | 0                    |                      |
|  | (1,2) core s'asjects (Breetive)  | (Nobuyuki Shibano)   |  |                         |                             |                         |                             | \  | , , ,                |                      |
|  |  | (Masaaki Nishino)  |  |                         |                             |                         |                             | \  |                      |                      |
|  |  | (Tomoharu Iwata)   |  |                         |                             |                         |                             |  |                      |                      |
| 331003   | Special Lectures on Information Science &<br>Technology I  | (Yasue Kishino)  | 2  | 2                       |                             |                         |                             | \  |                      |                      |
|  |  | (Takaaki Tanaka)   |  |                         |                             |                         |                             |  |                      |                      |
|  |  | (Masaya Hirashima)<br>(Hiroshi Ban)  |  |                         |                             |                         |                             |  |                      |                      |
|  |  | (Yasushi Naruse)   |  |                         |                             |                         |                             |  |                      |                      |
|  |  |  |  |                         |                             |                         |                             | \  |                      |                      |
| 331004   | Special Lectures on Information Science &<br>Technology II   | (Toshiyuki Kano)   | 2  |                         | 2                           |                         |                             |  |                      |                      |
|  |  | (Norihiko Tava)<br>Hideo Matsuda   |  |                         |                             |                         |                             | \  |                      |                      |
| 331701   | Bio-database Engineering   | Yoichi Takenaka  | 2  | 2                       |                             |                         |                             |  |                      |                      |
| $33\overline{1702}$  | Molecular Bio-information Analysis   |  | 2  |                         |                             |                         |                             | \  |                      |                      |
| 331703   | Metabolic Information Engineering  | Hiroshi Shimizu  | 2  | 2                       |                             |                         |                             | \  |                      |                      |
|  |  | Fumio Matsuda<br>Norikazu Ichihashi  |  |                         |                             |                         | <del> </del>                | \  |                      |                      |
| 331707   | Advanced Biosystems  | Takeshi Sunami   | 2  | 2                       |                             |                         |                             | \  |                      |                      |
|  | Human Information Processing   |  | 2  |                         |                             |                         |                             | ] \  |                      |                      |
|  | Seminar on Bioinformatic Engineering I   | All Staff  | 2  | 2                       |                             |                         |                             | 1 /  |                      |                      |
|  | Seminar on Bioinformatic Engineering II  | All Staff All Staff  | $\frac{2}{2}$  | 4                       | 2                           |                         |                             | `  | \                    |                      |
|  | Exercises on Bioinformatic Engineering I Exercises on Bioinformatic Engineering II   | All Staff  | $\frac{2}{2}$  | 4                       | 4                           |                         |                             |  |                      |                      |
| 551714   | Exercises on Diomormatic Engineering II  |  |  |                         | 4                           |                         |                             |  |                      |                      |
|  |  | Taro Maeda   |  |                         |                             |                         |                             |  | \                    |                      |
|  | Introduction to Exercises on Information   | Haruo Takemura<br>Toru Fujiwara  |  |                         |                             |                         |                             |  |                      |                      |
| 331426   | Engineering for Interactive Creation A   | Hideyuki Ando  | 4  | 4                       | 4                           |                         |                             |  | \                    |                      |
|  | Inigineering for interactive creation is   | Susumu Date  |  |                         |                             |                         |                             |  | \                    |                      |
|  |  | Yuichi Ito   |  |                         |                             |                         |                             |  | \                    |                      |
| 331719   | Bioprocess Engineering   |  | 2  |                         |                             |                         |                             | 1  | \                    |                      |
|  | Bio-network Engineering  |  | 2  |                         |                             |                         |                             |  | \                    |                      |
|  | Basic Theory of Bio-networks   | Naoki Wakamiya   | 2  | 2                       |                             |                         |                             | 1  | \                    |                      |
| 551721   | Dasic Theory of Bio networks   | Jun-nosuke Teramae   |  |                         |                             |                         |                             |  | '                    | \                    |
|  |  |  |  |                         |                             |                         |                             |  |                      | \                    |
| 331722   | Advanced Evolutional Systems   |  | 2  |                         |                             |                         |                             |  |                      |                      |
|  |  |  |  |                         |                             |                         |                             |  |                      |                      |
| 221722   | Human Information Engineering  | Taro Maeda   | 2  |                         | 2                           |                         |                             | 1  |                      | \                    |
|  |  | Hideyuki Ando  |  |                         |                             |                         |                             |  |                      | \                    |
|  | Introduction to Bioinformatic Engineering  | All Staff  | 2  | 2                       |                             |                         |                             |  |                      | \                    |
| 331724   |  |  |  | _                       |                             |                         |                             |  |                      |                      |
| 331724<br>331732   | Introduction to Integrated Biological and  | Hiroshi Shimizu  | 2  | 2                       |                             |                         |                             |  |                      | \                    |
| 331732   | Introduction to Integrated Biological and Information Engineering  | Yoshihiro Toya   |  | 2                       |                             | 6                       |                             |  |                      | \                    |
| 331732<br>331727   | Introduction to Integrated Biological and  | Yoshihiro Toya<br>All Staff<br>All Staff   | 2<br>2<br>2  | 2                       |                             | 6                       | 6                           |  |                      |                      |
| 331732<br>331727<br>331728   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering  | Yoshihiro Toya<br>All Staff  | 2  | 3                       | 3                           | 6                       | 6                           |  |                      |                      |
| 331732<br>331727<br>331728   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject   | Yoshihiro Toya<br>All Staff<br>All Staff   | 2 2  |                         | 3                           | 6                       | 6                           | (2,1)+(2,2)+(2,3)  | 0                    |                      |
| 331732<br>331727<br>331728   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering  | Yoshihiro Toya<br>All Staff<br>All Staff<br>All Staff  | 2 2  |                         | 3                           | 6                       | 6                           | $(2,1)+(2,2)+(2,3)$ $\Sigma$   | 0                    |                      |
| 331732<br>331727<br>331728   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject   | Yoshihiro Toya All Staff All Staff All Staff Staff Staffs of dept. of  | 2 2  |                         | 3                           | 6                       | 6                           | $(2,1)+(2,2)+(2,3)$ $\Sigma$   |                      |                      |
| 331732<br>331727<br>331728   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject   | Yoshihiro Toya All Staff All Staff All Staff Staffs of dept. of Information Systems  | 2 2  |                         | 3                           | 6                       | 6                           | $\Sigma$   |                      |                      |
| 331732<br>331727<br>331728<br>331729   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects   | Yoshihiro Toya All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering  | 2 2 2  | 3                       | 3                           | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject   | Yoshihiro Toya All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of   | 2 2  |                         | 3                           | 6                       | 6                           | Σ<br>(2,1)+(2,2)+(2,3)   |                      |                      |
| 331732<br>331727<br>331728<br>331729   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects   | Yoshihiro Toya All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering  | 2 2 2  | 3                       | 3                           | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects   | Yoshihiro Toya All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia  | 2 2 2  | 3                       | 3                           | 6                       | 6                           | Σ<br>\(\(\begin{array}{c} (2,1)+(2,2)+(2,3) \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills  | Yoshihiro Toya All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering  | 2 2 2  | 3                       | *2                          | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property  | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong  | 2 2 2 2  | 2                       | *2                          | 6                       | 6                           | Σ<br>\(\begin{align*} \(\overline{2},1)+(2,2)+(2,3) \\ \(2 |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005<br>331006<br>331014   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science)   | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other   | 2<br>2<br>2<br>2<br>2<br>2<br>2                          | 2                       | *2                          | 6                       | 6                           | $\Sigma$   |                      |                      |
| 331732<br>331728<br>331729<br>331729<br>331005<br>331006<br>331014<br>331135   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics  | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai   | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2                     | 2                       | *2<br>2<br>2                | 6                       | 6                           | Σ<br>\(\)  |                      |                      |
| 331732<br>331728<br>331729<br>331005<br>331005<br>331006<br>331014<br>331135<br>331225   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena  | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki   | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2                | 2                       | *2<br>2<br>2<br>2           | 6                       | 6                           | $\frac{(2,1)+(2,2)+(2,3)}{\Sigma}$   |                      |                      |
| 331732<br>331728<br>331729<br>331005<br>331005<br>331006<br>331014<br>331135<br>331225   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis  | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai   | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2                     | 2                       | *2<br>2<br>2                | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005<br>331006<br>331014<br>331135<br>331225<br>331228   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis Advenced Introduction to Information   | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and  | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2                | 2                       | *2<br>2<br>2<br>2           | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331728<br>331729<br>331005<br>331006<br>331014<br>331135<br>331225<br>331228<br>331222   | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science  | Yoshihiro Toya All Staff All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences  | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2           | 2 *2                    | *2<br>2<br>2<br>2           | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331728<br>331729<br>331729<br>331005<br>331006<br>331014<br>331135<br>331225<br>331208<br>331222<br>331303                     | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science Parallel Programming   | Yoshihiro Toya All Staff All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences Fumihiko Ino   | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2      | 2 *2                    | *2<br>2<br>2<br>2           | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331728<br>331729<br>331729<br>331005<br>331006<br>331014<br>331135<br>331225<br>331208<br>331222<br>331303                     | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science  | Yoshihiro Toya All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences Fumihiko Ino Toshimitsu Masuzawa   | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2           | 2 *2                    | *2<br>2<br>2<br>2           | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005<br>331005<br>331006<br>331014<br>331135<br>331225<br>331225<br>331228<br>331303<br>331303 | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills  The Foundation of Intellectual Property (Focusing on Computer Science)  Topics in Frontiers of Mathematics  Topics on Nonlinear Phenomena  Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science  Parallel Programming  Theory of Distributed System Software                           | Yoshihiro Toya All Staff All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences Fumihiko Ino   | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2 | 2 *2                    | *2<br>2<br>2<br>2<br>2      | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005<br>331005<br>331006<br>331014<br>331135<br>331225<br>331225<br>331228<br>331303<br>331303 | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science Parallel Programming   | Yoshihiro Toya All Staff All Staff All Staff All Staff All Staff  Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong  Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences Fumihiko Ino Toshimitsu Masuzawa Hirotsugu Kakugawa All staff of dept. of Computer Science             | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2      | 2 *2                    | *2<br>2<br>2<br>2<br>2      | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005<br>331005<br>331006<br>331014<br>331135<br>331225<br>331225<br>331228<br>331303<br>331303 | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2)Elective subject (2,1)Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills The Foundation of Intellectual Property (Focusing on Computer Science) Topics in Frontiers of Mathematics Topics on Nonlinear Phenomena Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science Parallel Programming Theory of Distributed System Software  Fundamentals of Computer Science | Yoshihiro Toya All Staff All Staff All Staff All Staff All Staff Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences Fumihiko Ino Toshimitsu Masuzawa Hirotsugu Kakugawa All staff of dept. of Computer Science Katsuro Inoue | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2 | 2 *2                    | *2<br>2<br>2<br>2<br>2      | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |
| 331732<br>331727<br>331728<br>331729<br>331005<br>331005<br>331006<br>331014<br>331135<br>331225<br>331225<br>331228<br>331303<br>331303 | Introduction to Integrated Biological and Information Engineering Research on Bioinformatic Engineering IIa Research on Bioinformatic Engineering IIb Internship on Bioinformatic Engineering (2) Elective subject (2,1) Inter-disciplinary Subjects  Informartion Technology and Ethics  English Presentation Skills  The Foundation of Intellectual Property (Focusing on Computer Science)  Topics in Frontiers of Mathematics  Topics on Nonlinear Phenomena  Advanced Statistical Analysis  Advenced Introduction to Information Pysicscal Science  Parallel Programming  Theory of Distributed System Software                           | Yoshihiro Toya All Staff All Staff All Staff All Staff All Staff  Staffs of dept. of Information Systems Engineering Staffs of dept. of Multimedia Engineering (Michio Nakanishi) Eum Suyong  Hidefumi Aoe & Other Satoshi Murai Hideyuki Suzuki Hiroshi Morita All staff of dept. of Information and Physical Sciences Fumihiko Ino Toshimitsu Masuzawa Hirotsugu Kakugawa All staff of dept. of Computer Science             | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2 | 2 *2                    | *2<br>2<br>2<br>2<br>2      | 6                       | 6                           | (2,1)+(2,2)+(2,3)<br>Σ   |                      |                      |

## Master's Program Subject and Completion Requirements 2017

Department of Bioinformatic Engineering School hour a week

| Code   A completion requirements item name and subject name   Instructor   Unit summer   Fall and Summer   Fall and Summer   Terms   Fall and Summer   Terms   Fall and Summer   Terms   Fall and Summer   Terms   T | Necessary<br>lower limit<br>units |
|--|-----------------------------------|
| Sal   Sal  |                                   |
| Advanced PBL for Software Development on Cloud Environment   |                                   |
| 331404 Computer Aided System-on-a-Chip Design  331502 Multimedia Network  Teruo Higashino Hirozumi Yamaguchi (Keita Arai)  331525 Advanced Introduction to Information Networking  All staff of dept. of Information Networking  Makoto Onizuka  331635 Big Data Engineering  Yuki Arase Yuva Sasaki  331636 Big Data Analytics  Toru Fujiwara Yasunori Ishihara  Leibnitz Kenji Ferdinand Peper  2 2  2 2  331639 Studies on International Integrated Sciences  Information Peruo Higashino 2 2  2 2  2 2  2 2  2 3  31636 Big Data Analytics  Leibnitz Kenji Ferdinand Peper 2 2   |                                   |
| 331502 Multimedia Network  Teruo Higashino Hirozumi Yamaguchi (Keita Arai)  Advanced Introduction to Information Networking  Advanced Introduction to Information Networking  All staff of dept. of Information Networking  Makoto Onizuka Yuki Arase Yuki Arase 2 2  331636 Big Data Analytics  331621 Information Security  Toru Fujiwara Yasunori Ishihara Leibnitz Kenji Ferdinand Peper 2 2   |                                   |
| 331511 Economics of Information Network  (Keita Arai)  Advanced Introduction to Information Networking  Advanced Introduction to Information Information Networking  Networking  Makoto Onizuka  Yuki Arase  Yuva Sasaki  331636 Big Data Analytics  Toru Fujiwara Yasunori Ishihara  Leibnitz Kenji  Ferdinand Peper  2 2  2 2  2 2  331637 Studies on International Integrated Sciences  Ferdinand Peper  2 2  2 2  331638 Studies on International Integrated Sciences  |                                   |
| Studies on International Integrated Sciences   Studies on International Information   Networking   Information   Networking   Makoto Onizuka   Studies on International Integrated Sciences   Studies on Internatio |                                   |
| 331635 Big Data Engineering Yuki Arase Yuva Sasaki  331636 Big Data Analytics 2 331621 Information Security Toru Fujiwara Yasunori Ishihara Leibnitz Kenji Ferdinand Peper 2 2 2   |                                   |
| Toru Fujiwara Yasunori Ishihara  Leibnitz Kenji Ferdinand Peper  2 2 3 1639 Studies on International Integrated Sciences Ferdinand Peper 2 2   | \                                 |
| Yasunori Ishihara  Leibnitz Kenji  Studies on International Integrated Sciences  Ferdinand Peper  2 2 2 331639 Studies on International Integrated Sciences  Ferdinand Peper  2 2  | \                                 |
| 331639 Studies on International Integrated Sciences Ferdinand Peper 2 2  |                                   |
| Siriteanu Constantin   |                                   |
| All staff of dept. of Bioinformatic Engineering  All staff of dept. of Bioinformatic Engineering  Bioinformatic Engineering  |                                   |
| All staff of dept. of Bioinformatic 1 2 Engineering  |                                   |
| (2,2)Others 0  |                                   |
| (2,3)Academic Internship Abroad   MAX{(2,3,1),(2,3,2)} 0   |                                   |
| (2,3,1)S 0   |                                   |
| 331025 Academic Internship Abroad M(S)  All Staff(Except Collaborative Division)  4 6 6 (※6)   |                                   |
| (2,3,2)L $0$   |                                   |
| Academic Internship Abroad M(L)  All Staff(Except Collaborative Division)  8 12 12 (※12)   |                                   |

Note1) 1.  $\Sigma$ = Integrate the total number of credits for subjects with a slant line directly below.

- 2. MAX= Integrate only one subject with the maximum number of credits.
- 3. The class with \* is held twice a year. However, registration is limited according to the department.
- 4. The class is not offered this year when the instructor's name field is blank.
- 5. Requirements for Completion; Students must receive 30 credits or more from this table, and pass a final evaluation of their master's thesis.
- 6. M1 students can register Academic Internship AbroadM(S),M(L) from "fall and winter terms" through "spring and summer terms".
- Note2) 1. The requirements to complete "Cloud Spiral" course shall be prescribed separately.
  - 2. 331332, 331333 and 331336 are offered only for "Cloud Spiral" course students. (held at Nakanoshima center)