Course Description for Postgraduates, Department of Neurobiology

<table>
<tr><td colspan="3">Course Title: Research Design and Scientific Writing</td><td colspan="3">Course Code: 510.537</td></tr>
<tr><td colspan="6">Course Category: □High-level course □International course □Advanced international courses √Common course</td></tr>
<tr><td colspan="6">Course Type: □1st-level discipline basic courses □2nd-level discipline basic courses √Optional professional courses</td></tr>
<tr><td colspan="6">The Methods of Assessment: opened-book examination</td></tr>
<tr><td colspan="3">Teaching Method: Lectures</td><td colspan="3">Applicable Educational Level:
Master√ Doctor□</td></tr>
<tr><td colspan="2">The Beginning of the Term: the second term</td><td colspan="2">Total Hours/Teaching Hours:
32/32</td><td colspan="2">Credits: 2</td></tr>
<tr><td colspan="6">Applicable Specialty: This course can be chosen by all majors.</td></tr>
<tr><td>Name of the Teachers of the Course Group</td><td>Professional Title</td><td>Major</td><td>Age</td><td colspan="2">Academic Direction</td></tr>
<tr><td>Bo Tian</td><td>Professor</td><td>Neuroscience</td><td>44</td><td colspan="2">Neurobiology</td></tr>
<tr><td>Yunyun Han</td><td>Professor</td><td>Neuroscience</td><td>37</td><td colspan="2">Neurobiology</td></tr>
<tr><td>Lei Pei</td><td>Associate Professor</td><td>Neuroscience</td><td>37</td><td colspan="2">Neurobiology</td></tr>
<tr><td>Ning Sun</td><td>lecturer</td><td>Neuroscience</td><td>41</td><td colspan="2">Neurobiology</td></tr>
<tr><td colspan="6">Course Outline:
I. Scientific research and publication:
1. Current status of scientific research in China
2. What is good scientific research?
3. Why publish high level SCI paper?
4. Brief introduction of JCR and influence factors
II. Retrieval and analysis of scientific literatures by using Web of Science:
1. Database of scientific literature resources</td></tr>
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2. Structural and functional characteristics of chemical synapse;
3. Searching literatures by using Web of Science;
4. Analyzing the frontiers using Web of Science;
5. Citation and frontiers tracking;

III. Collate and share literatures using Endnote:

1. EndNote and EndNote Web;
2. How to get the full text of the literature?
3. Build up your own full text library.

IV. Principles of medical research design and application of bioinformatics in medical research

1. Principles of medical scientific research and design
2. DNAman, software for molecular biology
3. ExPASy, bioinformatics resource portal
4. Primer-BLAST, online tool for PCR primer design
5. GeneCards, human gene database

V. Plotting and composing of experimental data:

1. How to organize the experimental data?
2. How to use Excel to collate data and do statistical analysis?
3. Plotting and composing using GraphPad Prism
4. Composing using Freehand

VI. Arrangement and data analysis of experimental pictures:

1. ImageJ, picture processing software
2. Application examples of ImageJ

VII. Submission of English papers:

1. Writing skills in English papers
2. How to choose a suitable journal?
3. How to write cover letter and rebuttal letters?
4. The process of manuscript review

VIII. Evaluation of scientific achievements:

1. H index, evaluation index of scientific achievements
2. Researcher ID, social management tools

Guide Books:

1. Design of medical research, Xiong Guoqiang, editor in chief (Science Press)

Main Reference Books:

1. *Scientific research paper design and production：from entry to master*, Chinese Academy of color, People's Post and Telecommunications Publishing House, 2017
2. *Scientific writing and literature retrieval*, edited by Sun Ping and Yi Xuefeng, Tsinghua University Press, 2013