

Cognitive Science - Courses in the summer term 2024 by modules (as of April 17, 2024)

Cognitive (Neuro-)Psychology (Responsibility / Modulbeauftragte: Hohenberger)

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-CNP):

Course	Lecturers	Mode	SWS	LP	Time
Introduction to Cognitive (Neuro-)Psychology	Hohenberger	Offline	4	8	Tue 10-12, Thu 10-12

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-CNP):

Course	Lecturers	Mode	SWS	LP	Time
Cognitive Science in the Anthropocene	Hohenberger	Hybrid	3	6	Mon, 15-18
Episodic Cognition	Hohenberger	Hybrid	3	6	Wed, 9-12
Language: Evolution, its use and social interaction	Tomasello	Hybrid	2	4	Tue, 16-18
Trends in Language and Brain Research	Tomasello	Hybrid	3	6	Wed, 10-12; Wed, 12-14 (fortnightly)
Emotion and Motivation	Stockhorst	Offline	2	4	Thu, 10-12; Wed, 12-14 (fortnightly)

Mandatory Elective Modules Master (Wahlpflichtbereich Master; CS-MWP-CNP):

Course	Lecturers	Mode	SWS	LP	Time
Cognitive Science in the Anthropocene	Hohenberger	Hybrid	3	6	Mon, 15-18
Episodic Cognition	Hohenberger	Hybrid	3	6	Wed, 9-12
Projects at the Intersection of Neuroscience and Machine Learning	Kietzmann	Offline	4	8	Wed, 10-12, Wed, 14-16
Language: Evolution, its use and social interaction	Tomasello	Hybrid	2	4	Tue, 16-18
Trends in Language and Brain Research	Tomasello	Hybrid	3	6	Wed, 10-12; Wed, 12-14 (fortnightly)
Emotion and Motivation	Stockhorst	Offline	2	4	Thu, 10-12; Wed, 12-14 (fortnightly)

Neuroscience (Responsibility / Modulbeauftragte: Brandt (CS-BP-NS), König (CS-BWP-NS and CS-MWP-NS))

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-NS):

Course	Lecturers	Mode	SWS	LP	Time
Sensory Physiology	Bakota	Offline	2	4	Fri, 10-12

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-NS):

Course	Lecturers	Mode	SWS	LP	Time
Action and Cognition: Motor System (Lecture)	König, J. Walter	Offline	2	4	Mon, 18-20
Action and Cognition: Visual System (Seminar)	König	Hybrid	2	4	Mon, 12-14
Decoding Neuronal Activity	Pipa	Hybrid	2	4	Block course
Journal Club "Spatial Cognition"	König, Schmidt	Offline	2	4	Wed, 10-12
Quest	König, Schmidt	Offline	2	4	Block course
Reading Group on Integrative Systems Approaches in Cognitive Computational Neuroscience	Thorat, Sommers, Kietzmann	Offline	2	4	
Topics in Cognitive Neuroscience	Thorat, Sommers, Kietzmann	Online	2	4	Block course
Biologisches Experimentalpraktikum	Bakota, Brandt	Offline	4	8	Block course
Emotion and Motivation	Stockhorst	Offline	2	4	Thu, 10-12; Wed, 12-14 (fortnightly)
Biopsychologie	Stockhorst	Offline	2	4	Wed, 8-10

Mandatory Elective Modules Master (Wahlpflichtbereich Master; CS-MWP-NS):

Course	Lecturers	Mode	SWS	LP	Time
Action and Cognition: Motor System (Lecture)	König, J. Walter	Offline	2	4	Mon, 18-20
Action and Cognition: Visual System (Seminar)	König	Hybrid	2	4	Mon, 12-14
Decoding Neuronal Activity	Pipa	Hybrid	2	4	Block course
Journal Club "Spatial Cognition"	König, Schmidt	Offline	2	4	Wed, 10-12
Quest	König, Schmidt	Offline	2	4	Block course
Reading Group on Integrative Systems Approaches in Cognitive Computational Neuroscience	Thorat, Sommers, Kietzmann	Offline	2	4	
Topics in Cognitive Neuroscience	Thorat, Sommers, Kietzmann	Online	2	4	Block course
Projects at the Intersection of Neuroscience and Machine Learning	Kietzmann	Offline	4	8	Wed, 10-12, Wed, 14-16
Automated Scientific Discovery	Musslick	Hybrid	4	8	Block course
Emotion and Motivation	Stockhorst	Offline	2	4	Thu, 10-12; Wed, 12-14 (fortnightly)
Biopsychologie	Stockhorst	Offline	2	4	Wed, 8-10

Neuroinformatics (Responsibility / Modulbeauftragte: Pipa, Heidemann (CS-BWP-NI and CS-MWP-NI))

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-NI)

Course	Lecturers	Mode	SWS	LP	Time
Machine Learning	Heidemann, Krumnack	Offline	6	12	Wed, 10-12, Thu, 10-12; Tue, 14-16

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-NI)

Course	Lecturers	Mode	SWS	LP	Time
Machine Learning	Heidemann, Krumnack	Offline	6	12	Wed, 10-12, Thu, 10-12; Tue, 14-16
Neurodynamics	Pipa	Hybrid	4	8	Thu, 14-16
Decoding Neuronal Activity	Pipa	Hybrid	2	4	Block course
Modelling of Synaptic Plasticity	Nosrat Nezami, Zemliak	Hybrid	2	4	Tue, 14-16
Advanced Computer Vision	Heidemann	Offline	2	4	Thu, 12-14
Deep Neural Network Analysis	Niehaus	Offline	2	4	Fri, 10-12

Mandatory Elective Modules Master (Wahlpflichtbereich Master; CS-MWP-NI)

Course	Lecturers	Mode	SWS	LP	Time
Neurodynamics	Pipa	Hybrid	4	8	Thu, 14-16
Decoding Neuronal Activity	Pipa	Hybrid	2	4	Block course
Modelling of Synaptic Plasticity	Nosrat Nezami, Zemliak	Hybrid	2	4	Tue, 14-16
Advanced Computer Vision	Heidemann	Offline	2	4	Thu, 12-14
Deep Neural Network Analysis	Niehaus	Offline	2	4	Fri, 10-12
Projects at the Intersection of Neuroscience and Machine Learning	Kietzmann	Offline	4	8	Wed, 10-12, Wed, 14-16

(Computational) Linguistics (Responsibility / Modulbeauftragte: Bruni, Gotzner)

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-CL):

Course	Lecturers	Mode	SWS	LP	Time
Introduction to Computational Linguistics	Bruni	Online	4	8	Tue, 12-14, Wed, 10-12

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-CL):

Course	Lecturers	Mode	SWS	LP	Time
Grounding LLMs in the Physical World	Bruni, Jassim	Offline	4	8	Block course
Experimenting with Language	Gotzner	Offline	2	4	Tue, 16-18
Introduction to Psycholinguistics	Hoeks, Gotzner	Offline	4	8	Thu, 14-18
Language: Evolution, its use and social interaction	Tomasello	Hybrid	2	4	Tue, 16-18
Trends in Language and Brain Research	Tomasello	Hybrid	3	6	Wed, 10-12; Wed, 12-14 (fortnightly)
Computational Creativity in Natural Language Processing	Muhammad Abdelmoneim	Hybrid	2	4	Thu, 14-16

Mandatory Elective Modules Master (Wahlpflichtbereich Master; CS-MWP-CL):

Course	Lecturers	Mode	SWS	LP	Time
Grounding LLMs in the Physical World	Bruni, Jassim	Offline	4	8	Block course
Experimenting with Language	Gotzner	Offline	2	4	Tue, 16-18
Introduction to Psycholinguistics	Hoeks, Gotzner	Offline	4	8	Thu, 14-18
Language: Evolution, its use and social interaction	Tomasello	Hybrid	2	4	Tue, 16-18
Trends in Language and Brain Research	Tomasello	Hybrid	3	6	Wed, 10-12; Wed, 12-14 (fortnightly)
Computational Creativity in Natural Language Processing	Muhammad Abdelmoneim	Hybrid	2	4	Thu, 14-16

Artificial Intelligence (Responsibility / Modulbeauftragter: Kühnberger)

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-AI):

Course	Lecturers	Mode	SWS	LP	Time
Introduction to AI and Logic Programming	Thelen	Hybrid	4	8	Mon, 14-16, Tue, 14-16

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-AI)

Course	Lecturers	Mode	SWS	LP	Time
Formal Models for Analyzing and Creating Music	Kühnberger	Hybrid	2	4	Fri, 14-16
Reading Course: Computational Cognitive Science	Kühnberger	Offline	2	4	Block course
Computational Creativity in Natural Language Processing	Muhammad Abdelmoneim	Hybrid	2	4	Thu, 14-16
Machine Learning	Heidemann, Krumnack	Offline	6	12	Wed, 10-12, Thu, 10-12; Tue, 14-16
Advanced Computer Vision	Heidemann	Offline	2	4	Thu, 12-14
Grounding LLMs in the Physical World	Bruni, Jassim	Offline	4	8	Block course
Deep Neural Network Analysis	Niehaus	Offline	2	4	Fri, 10-12

Mandatory Elective Modules Master (Wahlpflichtbereich Master; CS-MWP-AI)

Course	Lecturers	Mode	SWS	LP	Time
Formal Models for Analyzing and Creating Music	Kühnberger	Hybrid	2	4	Fri, 14-16
Reading Course: Computational Cognitive Science	Kühnberger	Offline	2	4	Block course
Computational Creativity in Natural Language Processing	Muhammad Abdelmoneim	Hybrid	2	4	Thu, 14-16
Advanced Computer Vision	Heidemann	Offline	2	4	Thu, 12-14
Grounding LLMs in the Physical World	Bruni, Jassim	Offline	4	8	Block course
Deep Neural Network Analysis	Niehaus	Offline	2	4	Fri, 10-12
Projects at the Intersection of Neuroscience and Machine Learning	Kietzmann	Offline	4	8	Wed, 10-12, Wed, 14-16

Philosophy (Responsibility / Modulbeauftragte: Walter)

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-PHIL)

Course	Lecturers	Mode	SWS	LP	Time
Philosophy for Cognitive Science	Hörzer, Meyer, von Maur, Walter	Offline	2	4	Wed, 10-12

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-PHIL)

Course	Lecturers	Mode	SWS	LP	Time
Neuroscience and Philosophy: The Libet Experiments	Walter	Offline	2	4	Wed, 10-12
Rationalism and Empiricism: Two Paradigms in Cognitive Science and their Philosophical Origins in Descartes and Hume (Part 1)	Walter	Offline	2	4	Tue, 15-18; Fri, 05.04. 8-10, 10-12
Rationalism and Empiricism: Two Paradigms in Cognitive Science and their Philosophical Origins in Descartes and Hume (Part 2)	Walter	Offline	2	4	Block course
Introduction to the Ethics of AI (Lecture + Discussion Group)	Mühlhoff	Hybrid	4	8	Mon, 16-18
Current Topics in the Ethics of Information Technology	Meyer	Offline	2	4	Wed, 10-12
Neuere Beiträge zur deutschsprachigen Debatte über Willensfreiheit	Meyer	Offline	3	4	Tue, 9-12
Personal Identity, Norms, and Ethics: The Philosophy of Derek Parfit	Meyer	Offline	4	8	Fri, 8-12
Consciousness, Science, and the Universe	Hörzer	Offline	2	4	Mon, 14-16
Introduction to the Philosophy of Mind (Intensive Course)	Hörzer	Offline	2	6	Fri, 14-16

Philosophy of Emotions (Intensive Course)	von Maur	Offline	2	6	Tue, 16-18
Das gute Leben	von Maur	Offline	2	4	Mon, 12-14
Discrimination and AI	Lindemann	Offline	2	4	Wed, 10-12
Extended and Bounded Cognition	Loock	Offline	2	4	Thu, 14-16
Think like a Feminist (*)	Walter	Hybrid	3	6	
"Can I kiss you?" - Philosophy of (sexual) consent	Buning	Offline	2	4	Mon, 10-12
Einführung in die politische Philosophie	Boshammer	Offline	2	4	Tue, 10-12
Einführung in die Erkenntnistheorie und Wissenschaftsphilosophie	Lowe	Offline	2	4	Wed, 10-12
Wittgenstein – Tractatus logico-philosophicus	Brinz	Offline	2	4	Thu, 10-12
Grundbegriffe der analytischen Philosophie	Lowe	Offline	2	4	Mon, 14-16
Was ist philosophisches Denken	Lavagno	Offline	2	4	Thu, 14-16

(*) Upon personal invitation only!

Mandatory Elective Modules Master (Wahlpflichtbereich Master; CS-MWP-PHIL)

Course	Lecturers	Mode	SWS	LP	Time
Neuroscience and Philosophy: The Libet Experiments	Walter	Offline	2	4	Wed, 10-12
Rationalism and Empiricism: Two Paradigms in Cognitive Science and their Philosophical Origins in Descartes and Hume (Part 1)	Walter	Offline	2	4	Tue, 15-18; Fri, 05.04. 8-10, 10-12
Rationalism and Empiricism: Two Paradigms in Cognitive Science and their Philosophical Origins in Descartes and Hume (Part 2)	Walter	Offline	2	4	Block course
Introduction to the Ethics of AI (Lecture + Discussion Group)	Mühlhoff	Hybrid	4	8	Mon, 16-18
Colloquium Ethics and Critical Theories of Artificial Intelligence	Mühlhoff	Hybrid	3	4	Tue 9-12
Current Topics in the Ethics of Information Technology	Meyer	Offline	2	4	Wed, 10-12
Neuere Beiträge zur deutschsprachigen Debatte über Willensfreiheit	Meyer	Offline	3	4	Tue, 9-12
Personal Identity, Norms, and Ethics: The Philosophy of Derek Parfit	Meyer	Offline	4	8	Fri, 8-12
Consciousness, Science, and the Universe	Hörzer	Offline	2	4	Mon, 14-16
Das gute Leben	von Maur	Offline	2	4	Mon, 12-14
Discrimination and AI	Lindemann	Offline	2	4	Wed, 10-12
Extended and Bounded Cognition	Loock	Offline	2	4	Thu, 14-16
Think like a Feminist (*)	Walter	Hybrid	3	6	
"Can I kiss you?" - Philosophy of (sexual) consent	Buning	Offline	2	4	Mon, 10-12
Einführung in die politische Philosophie	Boshammer	Offline	2	4	Tue, 10-12
Einführung in die Erkenntnistheorie und Wissenschaftsphilosophie	Lowe	Offline	2	4	Wed, 10-12

Wittgenstein – Tractatus logico-philosophicus	Brinz	Offline	2	4	Thu, 10-12
Grundbegriffe der analytischen Philosophie	Lowe	Offline	2	4	Mon, 14-16
Was ist philosophisches Denken	Lavagno	Offline	2	4	Thu, 14-16

(*) Upon personal invitation only!

Methods of Cognitive Science (Responsibility / Modulbeauftragter: Hörzer (temporarily))

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-MCS)

None. The mandatory course “Introduction to Statistics and Data Analysis” is offered in the winter term.

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-MCS)

Course	Lecturers	Mode	SWS	LP	Time
Anleitung zum wissenschaftlichen Arbeiten	Meyer	Offline	3	6*	Wed, 14-18
Writing like a Language Scientist	Gotzner	Offline	2	4	Tue, 14-16
Basic Programming in Python	Weinhardt	Hybrid	2	4	
Scientific Programming in Python	Bruni, Jassim	Hybrid	2	4	
Topics in Math for Cognitive Science	Heidemann	Offline	2	4	Tue, 12-14
Foundations of Mathematics for Deep Learning	Bruni, Jassim	Offline	4	8	Block course

* 4LP for the Methods module only (+2LP for the electives)

Informatik (Modulbeauftragter: Heidemann)

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-INF)

None. The mandatory course “Informatik für Anwendende I” / “Einführung in die Programmierung“ is offered in the winter term.

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-INF)

Course	Lecturers	Mode	SWS	LP	Time
Advanced Computer Vision	Heidemann	Offline	2	4	Thu, 12-14
Machine Learning	Heidemann, Krumnack	Offline	6	12	Wed, 10-12, Thu, 10-12; Tue, 14-16
Einführung in die Algorithmik	Brinkmeier	Offline	6	9	Mon, 14-16; Tue, 12-14; Tue, 14-16

„Einführung in die Algorithmik“ can be combined with both new mandatory courses. It cannot be combined with the old “Algorithmen und Datenstrukturen (Info A)”. Students who took the old Info A course can instead take one of the advanced computer science courses, such as “Theoretische Informatik” or “Technische Informatik”.

Mathematik (Modulbeauftragter: Kunis)

Mandatory Modules Bachelor (Pflichtbereich Bachelor; CS-BP-MAT)

Course	Lecturers	Mode	SWS	LP	Time
Mathematics for Cognitive Science	Römer	Offline	4	6	Tue, 16-18, Thu, 16-18; Fri, 10-12

„Mathematics for Cognitive Science“ is an alternative to the mandatory courses offered in the winter term for students who do not want to focus on mathematics in the mandatory electives.

Mandatory Elective Modules Bachelor (Wahlpflichtbereich Bachelor; CS-BWP-MAT)

Course	Lecturers	Mode	SWS	LP	Time
Analysis II	Kunis, Emmrich	Offline	6	9	Tue, 10-12, Thu, 10-12, Thu, 12-14, Fri, 8-10
Lineare Algebra II	Spitzweck	Offline	6	9	Mon, 10-12, Wed, 10-12, Fri, 10-12
Mathematik für Anwender II	Gnewuch, Wnuk	Offline	6	9	Mon, 10-12, Wed, 10-12; Thu, 14-16 / Thu, 16-18 / Fri, 10-12

Study Project (Responsibility / Modulbeauftragter: Hörzer)

Mandatory Modules Master (Pflichtbereich Master; CS-MP-SP)

Course	Lecturers	Mode	SWS	LP	Time
Data Ethics Outreach Lab	Mühlhoff	Hybrid	6	12	Tue, 14-17
Automatic Music Transcription (Part I)	Krumnack, Kühnberger, Brima	Offline	6	12	Fri, 10-12
The secret lives of adjectives - The Psycholinguistics of Adjective Use (Part III)	Gotzner, Tourtouri	Hybrid	6	12	Wed, 9-12
Dyadic eye tracking in virtual reality to investigate visual interaction (Part II)	König, Nolte, J. Walter	Offline	6	12	Mon, 14-16
Human-A and EEG (Part II)	König, Nolte, Sanchez	Offline	6	12	Tue, 14-16
Spatial Navigation supported by AI (Part I)	König	Hybrid	6	12	Mon, 10-12
Emergent Behaviors in a Multi-Agent System with Reinforcement Learning (Part IV)	Bruni, Mayer	Offline	6	12	Tue, 14-17; Wed, 16:30-18:30
The Mentality of Apes by Wolfgang Köhler: One century later (Part IV)	Pika	Offline	6	12	Tue, 15-16, fortnightly
Computing with Spikes (Part I)	Nieters, Nosrat Nezami	Offline	6	12	Mon, 14-16, Thu, 10-12
DreamGuard: A Web Application for restful Nights (Part I)	Pipa, Lüth	Offline	6	12	Mon, 10-11:30, Wed, 10-11:30
Affectivity in Political Language	Meyer, von Maur, Stephan	Offline	6	12	Mon, 12-16

Interdisciplinary Courses (Responsibility / Modulbeauftragter: Hörzer)

Mandatory Modules Master (Pflichtbereich Master; CS-MP-IDC)

Course	Lecturers	Mode	SWS	LP	Time
The secret lives of adjectives: The Psycholinguistics of adjective use (Part II) (Begleitseminar)	Gotzner, Tourtouri	Hybrid	4	6	Wed, 9-12
Spatial Navigation supported by AI (Part I) (Begleitseminar)	König	Hybrid	3	6	Mon, 10-12
Emergent Behaviors in a Multi-Agent System with Reinforcement Learning (Part IV) (Begleitseminar)	Bruni, Mayer	Offline	4	6	Tue, 15-18; Thu, 15-18
Computing with Spikes (Part I) (Begleitseminar)	Nieters, Nosrat Nezami	Offline	4	6	Mon, 14-16, Thu, 10-12
Automatic Music Transcription (Part I) (Begleitseminar)	Krumnack, Kühnberger, Brima	Offline	3	6	Fri, 10-12
Decoding Neuronal Activity	Pipa	Hybrid	2	4	Block course
Projects at the Intersection of Neuroscience and Machine Learning	Kietzmann	Offline	4	8	Wed, 10-12, Wed, 14-16
Practical Cognitive Science Communication	Frohn	Hybrid	4	8	Thu, 10-14
Neuroscience and Philosophy: The Libet Experiments	Walter	Offline	2	4	Wed, 10-12
Quest	König, Schmidt	Offline	2	4	Block course
Enhancing AI through Hybrid Data Sets	Schöning	Hybrid	2	4	Tue, 10-12
Lab Rotation	NN	Offline	6	12	

Electives (Responsibility / Modulbeauftragte: Hörzer; Walter (CS-BW-IWS only))

This list contains courses that are explicitly assigned to the electives. Nonetheless, other courses can usually be assigned to the electives as well.

Electives Bachelor (profilbildender Wahlbereich; CS-BW)

Course	Lecturers	Mode	SWS	LP	Time
Reading Club Affectivity	Hörzer, Walter	Offline	2	2	Tue, 18-20
Language and Communication Colloquium	Bruni, Gotzner, Hohenberger, Pika	Offline	1	2	Wed, 14-15
Colloquium „Computer Vision“	Heidemann	Offline	2	0	Wed, 8-10
Scientific Programming in Python	Bruni, Jassim	Hybrid	2	4	
Basic Programming in Python	Weinhardt	Hybrid	2	4	
Writing like a Language Scientist	Gotzner	Offline	2	4	Tue, 14-16
Topics in Math for Cognitive Science	Heidemann	Offline	2	4	Tue, 12-14
Foundations of Mathematics for Deep Learning	Bruni, Jassim	Offline	4	8	Block course

Electives Master (profilbildender Wahlbereich; CS-MW)

Course	Lecturers	Mode	SWS	LP	Time
Reading Club Affectivity	Hörzer, Walter	Offline	2	2	Tue, 18-20
Language and Communication Colloquium	Bruni, Gotzner, Hohenberger, Pika	Offline	1	2	Wed, 14-15, fortnightly
Colloquium „Computer Vision“	Heidemann	Offline	2	0	Wed, 8-10
Scientific Programming in Python	Bruni, Jassim	Hybrid	2	4	
Basic Programming in Python	Weinhardt	Hybrid	2	4	
Writing like a Language Scientist	Gotzner	Offline	2	4	Tue, 14-16
Topics in Math for Cognitive Science	Heidemann	Offline	2	4	Tue, 12-14
Foundations of Mathematics for Deep Learning	Bruni, Jassim	Offline	4	8	Block course

Integrative Mandatory Element in the Electives Bachelor (Integratives Pflichtelement im Wahlbereich Bachelor; CS-BW-IP)

None. The course „Foundations of Cognitive Science“ is offered in the winter term.

Integrative Optional Element in the Electives Bachelor (Integratives Wahlelement „Anleitung zum wissenschaftlichen Arbeiten“ im Wahlbereich Bachelor; CS-BW-IWS)

Course	Lecturers	Mode	SWS	LP	Time
Anleitung zum wissenschaftlichen Arbeiten	Meyer	Offline	3	6	Wed, 14-18

PhD students

Course	Lecturers	Mode	SWS	LP	Time
Soft Skills for PhD students	Gotzner	Offline	0,5	0	